

AMENDMENTS TO THE CLAIMS

1. (currently amended): A flexible connection unit for use in a spinal fixation device, the flexible connection unit comprising a solid metal rod having grooves formed in a spiral configuration along at least a portion of the rod so as to provide flexibility to the rod, the connection unit having a first portion configured to be coupled to a first securing member and a second portion configured to be coupled to a second securing member.

2. (original): The flexible connection unit of claim 1 wherein the solid metal rod is made from a material selected from the group consisting of: stainless steel, iron steel, titanium, titanium alloy and NITINOL.

3. (original): The flexible connection unit of claim 1 wherein the rod is cylindrical in shape and has a length between 4 and 8 centimeters and a cylindrical diameter between 4 and 8 millimeters.

4. (original): The flexible connection unit of claim 3 wherein the grooves are cut toward a center longitudinal axis of the rod, the grooves having a depth between 1 and 4 millimeters and a width between 0.1 and 0.5 millimeters.

5. (original): The flexible connection unit of claim 4 wherein the grooves spiral around the rod at an angle θ from horizontal between 50 and 80 degrees and wherein the spacing between adjacent spirals of the groove is between 3 and 6 millimeters.

6. (original): The flexible connection unit of claim 1 further including a plurality of transverse tunnels formed within at least a portion of the solid metal rod.

7. (original): The flexible connection unit of claim 6 wherein the solid metal rod is cylindrical in shape and each transverse tunnel passes through a center longitudinal axis of the

cylindrical rod such that openings for each respective transverse tunnel are located on opposite sides of the cylindrical wall of the rod.

8. (original): The flexible connection unit of claim 7 wherein each transverse tunnel passes through the center longitudinal axis of the cylindrical rod at a predetermined angle Φ and wherein adjacent transverse tunnels share a common opening on one side of the cylindrical wall, forming a zig-zag pattern of interior tunnels passing transversely through the central longitudinal axis of the rod.

9. (original): The flexible connection unit of claim 8 wherein the location of the common openings overlap with the location of the grooves on the exterior surface of the rod.

10. (original): The flexible connection unit of claim 7 wherein each of said plurality of transverse tunnels have an internal diameter between 0.2 and 3 millimeters.

11. (currently amended): A flexible connection unit for use in a spinal fixation device comprising a solid metal rod having a plurality of transverse tunnels formed within at least a portion of the solid metal rod so as to provide flexibility to the rod, the connection unit having a first portion configured to be coupled to a first securing member and a second portion configured to be coupled to a second securing member.

12. (original): The flexible connection unit of claim 11 wherein the solid metal rod is cylindrical in shape and each transverse tunnel passes through a center longitudinal axis of the cylindrical rod such that openings for each respective transverse tunnel are located on opposite sides of the cylindrical wall of the rod.

13. (original): The flexible connection unit of claim 12 wherein each transverse tunnel passes through the center longitudinal axis of the cylindrical rod at a predetermined angle Φ and wherein adjacent transverse tunnels share a common opening on one side of the cylindrical wall,

forming a zig-zag pattern of interior tunnels passing transversely through the central longitudinal axis of the rod.

14. (original): The flexible connection unit of claim 11 wherein each of said plurality of transverse tunnels have an internal diameter between 0.2 and 3 millimeters.